

## High-Temperature Liners for Broadband Noise Reduction, Phase I

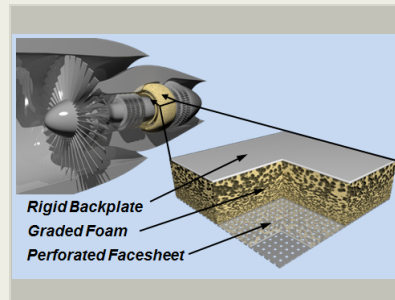
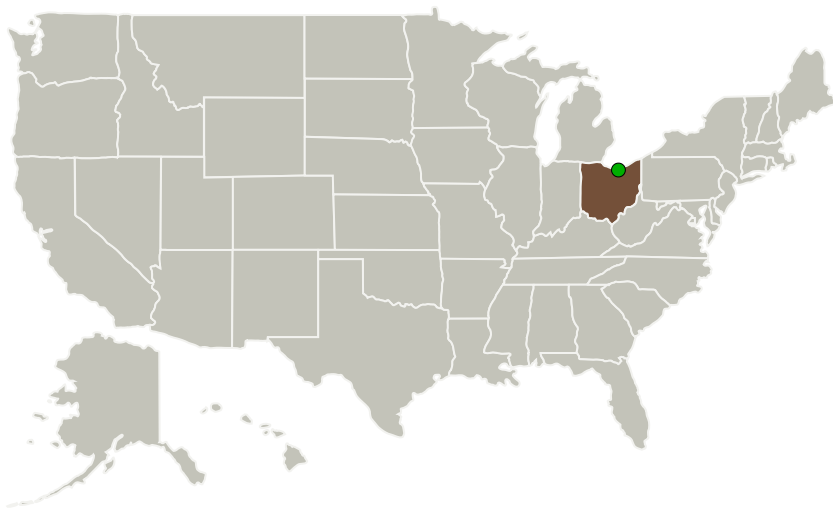
Completed Technology Project (2013 - 2013)



## Project Introduction

Core noise will become a larger component of engine noise overall, as more efficient design trends of fan and jet noise reduction technologies are implemented. The necessity to keep weight and material costs low, as well as the complex geometry and high temperatures involved with the combustion region, make the production of acoustic liners a difficult task. CRG will develop and produce a prototype acoustic liner test sample for the combustion region that will address all of these issues. CRG will use its Sialyte(TM) material and simple manufacturing processes to produce a lightweight, inexpensive liner, that contains inherent high-temperature resistant properties. Sialyte(TM) is a low-cost material system developed for use in high-temperature and high-pressure applications. CRG will tailor Sialyte(TM) liner properties to demonstrate fabrication control of Sialyte(TM) open-cell foams or combination with Sialyte(TM) honeycomb. These materials will provide broadband acoustic attenuation in relevant frequency ranges, as well as tailoring material properties for mechanical and thermal performance requirements. The Sialyte(TM) liner will conform to complex, curved geometries and will withstand the high temperatures and stresses in the combustion region. CRG will demonstrate performance of TRL 4 in Phase I.

## Primary U.S. Work Locations and Key Partners



High-Temperature Liners for Broadband Noise Reduction

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## High-Temperature Liners for Broadband Noise Reduction, Phase I



Completed Technology Project (2013 - 2013)

Organizations Performing Work	Role	Type	Location
Cornerstone Research Group, Inc.	Lead Organization	Industry	Miamisburg, Ohio
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

## Primary U.S. Work Locations

Ohio

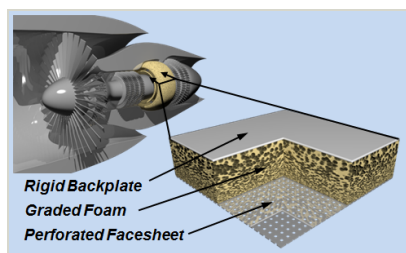
## Project Transitions

**May 2013:** Project Start**November 2013:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138588>)

## Images



## Project Image

High-Temperature Liners for Broadband Noise Reduction  
(<https://techport.nasa.gov/image/128550>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

Cornerstone Research Group, Inc.

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

Carlos Torrez

## Principal Investigator:

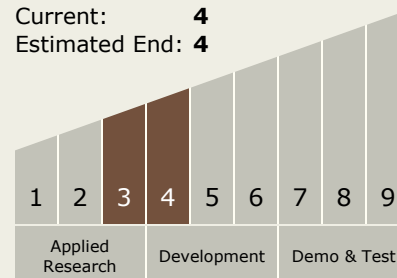
Jason Hermiller

## Technology Maturity (TRL)

Start: 3

Current: 4

Estimated End: 4



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## Technology Areas

### Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.4 Manufacturing
    - └ TX12.4.5 Nondestructive Evaluation and Sensors

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System